

**WHAT IS CLAIMED IS:**

1           1. A method of automatically configuring and  
2     authenticating a client device installed in a data  
3     network access device at a user's premises, said network  
4     access device including an Internet Protocol (IP) router  
5     that routes IP signaling between a remote data network  
6     and a plurality of users connected to the network access  
7     device at the premises, said method comprising the steps  
8     of:  
9           preprogramming the client device with a common key  
10    set;  
11          requesting access to the remote data network by the  
12    client device using the preprogrammed common key set for  
13    authentication purposes;  
14          determining by an authenticator in the network  
15    whether the common key set is valid;  
16          providing the client device with limited network  
17    access, said limited access enabling the client device to  
18    access only a registration server, upon determining that  
19    the common key set is valid;  
20          accessing the registration server;  
21          sending a new user key set to the client device;  
22          automatically requesting access to the remote data  
23    network by the client device using the new user key set  
24    for authentication purposes;

25           determining by the authenticator whether the new  
26   user key set is valid; and  
27           providing the client device with full network  
28   access, upon determining that the new user key set is  
29   valid.

1           2.   The method of claim 1 wherein the step of  
2   requesting access to the remote data network by the  
3   client device using the common key set for authentication  
4   purposes includes automatically requesting access to the  
5   remote data network by the client device using the common  
6   key set for authentication purposes when the client  
7   device is installed in the network access device.

1           3.   The method of claim 1 wherein the registration  
2   server is associated with the common key set in an  
3   authentication database, and the step of providing the  
4   client device with limited network access includes  
5   providing the client device with access only to a  
6   registration server associated with the common key set  
7   received from the client device.

1           4.    The method of claim 1 wherein the step of  
2    sending a new user key set to the client device includes  
3    the steps of:

4            automatically assigning the new user key set by the  
5    registration server; and

6            sending the new user key set from the registration  
7    server to the client device.

1           5.    The method of claim 4 wherein the step of  
2    sending a new user key set to the client device also  
3    includes sending the new user key set from the  
4    registration server to the authenticator.

1           6.    The method of claim 1 wherein the step of  
2    sending a new user key set to the client device includes  
3    sending a new user key set from the authenticator to the  
4    client device.

1           7.    The method of claim 1 wherein the step of  
2    accessing the registration server includes registering  
3    one of the users with the registration server, said  
4    registering step including selecting the new user key set  
5    by the registering user.

1           8. The method of claim 7 wherein the step of  
2 sending a new user key set to the client device includes  
3 sending the new user key set selected by the user from  
4 the registration server to the client device and to the  
5 authenticator.

1           9. The method of claim 1 wherein the step of  
2 automatically requesting access to the remote data  
3 network by the client device using the new user key set  
4 for authentication purposes includes the steps of:

5           receiving the new user key set in the client device;  
6           authenticating by the client device that the new  
7 user key set is received from a valid source; and

8           automatically requesting access to the remote data  
9 network by the client device using the new user key set,  
10 upon authenticating that the new user key set is received  
11 from a valid source.

1           10. A system for automatically configuring and  
2     authenticating a client device installed in a data  
3     network access device at a user's premises, said network  
4     access device including an Internet Protocol (IP) router  
5     that routes IP signaling between a remote data network  
6     and a plurality of users connected to the network access  
7     device at the premises, said system comprising:

8           a client device comprising:

9                 means for storing a preprogrammed common key  
10     set;

11                means for requesting access to the remote data  
12     network utilizing the preprogrammed common key set for  
13     authentication purposes when the client device is  
14     installed in the network access device; and

15                means for automatically requesting access to  
16     the remote data network utilizing a new user key set for  
17     authentication purposes, said new user key set being  
18     received during a registration process;

19           an authenticator in the network comprising:

20                means for determining whether the common key  
21     set is valid, and providing the client device with  
22     limited network access enabling the client device to  
23     access only a registration server, upon determining that  
24     the common key set is valid; and

25                means for determining whether the new user key  
26     set is valid, and providing the client device with full

27 network access, upon determining that the new user key  
28 set is valid; and  
29 a registration server for registering the client  
30 device in the network, and sending a new user key set to  
31 the client device.

1 11. The system of claim 10 wherein the  
2 authenticator includes an authentication database that  
3 associates a plurality of common key sets with a  
4 plurality of registration servers.

1 12. The system of claim 10 wherein the client  
2 device also includes means for authenticating that the  
3 new user key set is received from a valid source.

1 13. The system of claim 10 wherein the client  
2 device utilizes the Point-to-Point Protocol (PPP) for  
3 signaling with the authenticator and registration server.

1 14. The system of claim 13 wherein the client  
2 device is installed in a Customer Premises Equipment  
3 (CPE) comprising a Digital Subscriber Line (DSL) modem  
4 and IP router.

1           15. A client device installed in a data network  
2 access device at a user's premises, said network access  
3 device including an Internet Protocol (IP) router that  
4 routes IP signaling between a remote data network and a  
5 plurality of users connected to the network access device  
6 at the premises, said client device comprising:

7           means for storing a preprogrammed common key set;

8           means for requesting access to the remote data  
9 network utilizing the preprogrammed common key set for  
10 authentication purposes when the client device is  
11 installed in the network access device;

12           means for receiving a new user key set from the  
13 network;

14           means for replacing the common key set with the  
15 received new user key set; and

16           means responsive to receiving the new user key set  
17 for automatically requesting access to the remote data  
18 network utilizing the new user key set for authentication  
19 purposes.

1           16. The client device of claim 15 further  
2 comprising means for authenticating that the new user key  
3 set is received from a valid source.

1           17. The client device of claim 15 wherein the  
2           client device utilizes the Point-to-Point Protocol (PPP)  
3           for signaling with the authenticator and registration  
4           server.

1           18. The client device of claim 17 wherein the  
2           client device is installed in a Customer Premises  
3           Equipment (CPE) comprising a Digital Subscriber Line  
4           (DSL) modem and IP router.